Forest Insect & Disease Management

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STATUS OF SOUTHERN PINE BEETLE ON THE CONGAREE SWAMP NATIONAL MONUMENT, S.C.

by

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ABSTRACT

A ground survey of the Congaree Swamp National Monument detected five trees currently under attack by southern pine beetles. Four alternatives for dealing with the problem are discussed.

INTRODUCTION

The Congaree Swamp was declared a national natural landmark in 1974, in recognition of this area being one of the last near virgin and virgin southern bottomland hardwood forest in the United States. In 1976, Congress authorized the establishment of the Congaree Swamp National Monument. Negotiations are currently underway between the Department of Interior and the current owner, Santee River Cypress Lumber Company, for establishment of the monument.

The Congaree flood plain consists of about 15,000 acres of diverse and well-developed old-growth forest communities with exceptionally large canopied trees. The Beidler Tract is nearly all virgin forest. Record size trees are interspersed throughout the swamp. Within the monument's boundaries, trees of ten species have been verified as South Carolina records and five of these hold National records.

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One of these is loblolly pine (Pinus teada). Scattered pockets of exceedingly large old-growth loblolly pines are found along the bluffs and line part of the drive into the Cedar Creek Hunt Club. These trees are between 30 and 45 inches in diameter and are between 120 to 140 feet tall. Evidence of previous southern pine beetle (Dendroctonus frontalis, Zimm.) is present in small groups and is usually in association with lightning strikes.

This evaluation discusses the current status of southern pine beetle activity in the Congaree Swamp National Monument.

METHODS

On June 13, 1979, Forest Insect and Disease Management received a report of southern pine beetle activity from monument personnel. A ground check of the area was made to determine the extent and severity of the infestation.

RESULTS AND DISCUSSION

A ground check of the area showed a small area consisting of five pines currently being attacked by southern pine beetle (SPB) and black turpentine beetle (D. terebrans, Oliv.). All affected trees had green crowns. The lowest part of the SPB infestation was approximately 20 feet high and attack success or brood condition could not be determined. Pitch tubes were evident on only two trees, while the other trees showed signs of being currently under attack by the accumulation of red boring dust in bark crevices and at the base of the trees.

The location of the infestation is on the right side of the drive into the Cedar Creek Hunt Club before crossing Cedar Creek.

The southern pine beetle is a natural component of the forest ecosystem. Its role is to eliminate from the forest those trees which are stressed, overmature, of low productivity, and are not a component of the more stable climax forest. In the swamp it is fulfilling this role.

Due to the scattered grouping of pine and the predominately hardwood component of this area, it is unlikely that all these large pines will be attacked at one time; probably, they will continue to be attacked periodically in small groups. Trees suffering the largest amount of stress are

more likely to be attacked first. This group includes those trees adjacent to the road where soil compaction has damaged their roots and the road has also altered the natural drainage within the areas. Because of their extreme size and age they are not able to adapt to deleterious changes in their immediate habitat.

RECOMMENDATIONS

At present, there are no preventive measures available to adequately protect existing loblolly pines from future attacks by southern pine beetles.

Forest Insect and Disease Management recommends the following four possible courses of action:

1. Remove trees through timber sale (i.e., Salvage)
2. Fell trees and leave them exposed to sun
3. Fell trees and spray bark with Lindane
4. Do nothing and allow infestation to follow natural trend.

Each recommendation has its limitation and these are discussed.

From a control standpoint, salvage is the best alternative since the land manager removes the infestation and gains something in return. However, there are problems: First, the Department of Interior does not currently own the land on which the infestation exists. Any cutting would probably need to be agreed upon by the Santee River Lumber Company, second, the use of heavy equipment needed to remove these extremely large trees (each tree exceeds 2000 ft.) may damage existing uninfested pines which line the drive in to the spot. Other trees might also be damaged during tree felling, and third, the salvage of these trees may conflict with the stated management objectives of the monument: *"To protect and perpetuate the monument's natural resources, including the bottom-land hardwood ecosystem by protecting the complex hydrological and biological processes."* The removal or any control technique of infested pine trees would alter a natural biological process which is the last phase of forest succession to a climax hardwood ecosystem.

Alternative number two is usually suggested for areas where the infestation is inaccessible for harvest, small in size and/or of low value. The trees are felled toward the spot center and the bark is exposed to the sun. Solar heating of the exposed bark kills the beetles under the bark. Some of the same problems exist with this alternative as for the first and total control is not always achieved, since the bottom bark surfaces are not exposed.

Like alternative number two, felling and spraying with Lindane is usually recommended for inaccessible areas. Trees are felled and cut into workable lengths for turning which enables all bark surfaces to be sprayed. Some of the same problems exist as in alternative number one in regard to cutting. To be effective, all bark surfaces have to be sprayed, which involves turning the logs. With trees of such size this will be no easy task.

If either of these three alternatives are chosen by the monument manager, it would be advisable to have Forest Insect and Disease Management personnel mark only trees for cutting to minimize any problems in removing healthy trees.

The last alternative is for no action allowing the infestation to run its course. As stated before, the fact that these large pines are scattered and interspersed with large hardwoods, increases the likelihood that only a small area of pine will be lost. In the future other small groups of pine will be killed, usually in association with lightning strikes. This will continue periodically until total transition into a climax forest occurs.